



Akhil Kumar Jha
PG (II Year I Semester)
M.Tech. Structural Dynamics
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Area of Interest

Data Science, Machine learning, Deep learning, Natural language processing, Data structure and algorithm, web development

Education

Year	Degree/Examination	Institution/Board	CGPA/Percentage
2023	M.Tech. 1st Year	Indian Institute of Technology, Roorkee	8.325
2020	Graduate (UG)	National Institute of Technology Patna	8.700
2015	Intermediate (Class XII)	M.L.T College Saharsa	80.00 %
2013	Matriculate (Class X)	High school Chainpur Parari	83.80 %

Experience

Graduate Engineer Trainee | Larsen & Toubro Construction limited August 2020 - August 2021

- As a GET there, my task was to prepare various reports & carry out subcontractor billing.during my training in L&T i got exposure of each department at site including Planning , Site execution , safety , Quality & accounts. My works included preparing joint measurement report, subcontractor billing , making progress report, vigilance of progress at site , preparing work order of different contractor.

Internships

Early stage diabetes prediction | Exposys Data Labs June 2023 - July 2023

- The project focuses on addressing the significant health concern of diabetes, a chronic disease prevalent across all age groups. Early detection of diabetes is crucial, as it empowers individuals to take proactive measures to prevent its onset or manage the condition effectively for those already diagnosed. In this project, I prepared a data set and applied different machine learning algorithms, checking the accuracy of those models, and also tried to prepare an efficient neural network architecture.

Projects

Perturbation-Based Approach for Simulating Seismic Motion in Homogeneous Elastic Half-Space with 1-D Non-Planar Topography | IIT Roorkee July 2023 - June 2024

- It is well-known that seismic ground motion can be significantly altered in the presence of non-planar surface topography. Two of the most common numerical methods employed to account for non-planar topography are the finite-difference and finite-element methods. It is however possible to employ a much simpler and semi-analytical approach, viz., the perturbation-based approach, for simulating the ground motion in the case of a homogeneous elastic half-space with non-planar topography. In this approach, the aforementioned simulation problem gets reduced to computing the response of the said medium with flat topography but subjected to surface tractions (that mathematically replace the non-planar topographies). Since the dynamic response of the latter medium is easy to synthesize, the perturbation-based approach can be conveniently implemented and is likely to be computationally less intensive than other numerical techniques. The thesis, accordingly, aims to formulate the perturbation-based solution of the surface motions of a homogeneous elastic half-space with 1-D non-planar topography. An attempt will also be made to validate this approach by comparing its solution with that of a finite element-based solver

Fake News Classifier by Implementing Different ML Models | IIT Roorkee January 2023 - May 2023

- As part of our CSN-526 coursework on "Machine Learning," we undertook a project involving a Kaggle dataset. Our project encompassed various stages, including text preparation, tokenization, stemming, and feature engineering. For all these steps we used the Natural language toolkit library. In the feature engineering phase, we employed one-hot encoding. Subsequently, we adopted a machine learning-centric approach for modeling, and evaluating the performance of diverse algorithms such as Naive Bayes, K-Nearest Neighbors (KNN), Support Vector Machines (SVM), Logistic Regression, and Decision Trees. Additionally, we explored deep learning methodologies to achieve enhanced accuracy. Specifically, we also implemented state-of-the-art algorithms i.e. Long Short-Term Memory (LSTM).

Movie recommender system | Self(Not verified by PIC) June 2023

- The primary focus of this project was the development of a content-based movie recommendation system. To achieve this goal, I utilized the "kaggle TMDb 5000 dataset" from Kaggle. The initial preprocessing steps involved handling NaN values, dropping unnecessary columns, creating tags, and encoding relevant features. To identify similar movies based on content, two approaches were considered: calculating the Euclidean distance between movie vectors in vector space or determining cosine similarity. Given the impracticality of computing Euclidean distance for a large dataset, we opted for cosine similarity scores. The recommendation system, therefore, operated by identifying five movies with the highest cosine similarity scores in the vector space.

Awards / Scholarships / Academic Achievements

- qualified national means cum merit scholarship exam in 2011

Skills

Computer languages	C++ , python,HTML,CSS,SQL
Software Packages	Matlab,Latex
Additional Courses	Supervised machine learning: Regression and classification, Introduction to C++ and DSA, SQL
Languages Known	English , Hindi , Mathili , Sanskrit

Positions of Responsibility & Extra Curriculars

Teaching assistant | IIT Roorkee

July 2023 - November 2023

- As a dedicated Teaching Assistant (TA) in the EQN-531 course, titled "Seismological Modeling and Simulation," my primary responsibilities encompass organizing and facilitating Python tutorials essential for students to gain proficiency in numerical simulations. Additionally, I meticulously coordinate quizzes and assignments, providing students with opportunities to test their comprehension of seismological principles. Beyond the classroom, I engage students during office hours, offering personalized support and clarifications, and fostering a collaborative learning environment.

References

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